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EXAMINER
VO, TED T

ART UNIT	PAPER NUMBER
2191	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/807,374	OTA, YUTAKA	
	Examiner	Art Unit	
	TED T. VO	2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 December 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the amendment filed on 12/17/2008.

Claims 1-20 are pending in the application.

Response to Arguments

2. This is in response to the Applicants' argument remarks filed on 12/17/2008.

Applicants' argument is that compiler of the claims is distinct from the Loveman for that:

> "Loveman fails to disclose that "*an instruction statement for explicitly calling the intrinsic function which defines aforementioned details of the processing operations is not beforehand described in a body of the input source program* since *the definition of the intrinsic function is provided independently from the input source program,* and the program for compiling generates no object code from the intrinsic function" as recited in amended independent Claims 1, 13 and 20".

It appears applicants submitted Loveman fails to disclose the definition of the intrinsic function is provided independently from the input source program.

It should be noted the limitations relate to a definition of intrinsic functions in a database and this is compared when the compiler does the syntax check to an intrinsic function.

Examiner refers the Applicants' argument to the Loveman teaching that provides a front end, and this front end does the syntax check to a source input program. When performing the syntax check, it is obvious for any complier to look for its language syntax and its user defined intrinsic functions. For example, refer to a program in p. 51, PI, or SUM is an intrinsic function,

and they are preprogrammed and stored in database. Under a compilation, the PI, SUM, or other used defined functions are part of intrinsic function definition. Therefore, when compiling a program that encounters an intrinsic function like SUM, it will perform the check on the intrinsic definition. On the other hand, when compiling DO, IF, etc., it is part of the language syntax; therefore, the compiler will look for syntax definition of the programming language. When Loveman mentions the font end that is responsible for lexical analysis, syntax analysis, and semantic analysis, these will look for the definitions of SUM, PI, if appears in the source program, and verify the correct syntax that defines for intrinsic functions. Otherwise, the compiler will not recognize the function SUM (a,b), or it will be unable to calculate the value of PI.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-10, 13-17, 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Loveman, "The DEC High Performance Fortran 90 Compiler Front End", 1995, IEEE, pages: 46-53.

As per Claim 1: Loveman discloses a compiler front end that anticipates: t

A memory configured to store a program, which when executed by a computer, causes the computer to perform a method of compiling for generating object code from an input source program, the object code including user-defined machine instructions defined by a user, the method comprising:

analyzing, by a syntax analyzer, whether or not an operation described in the source program conforms to grammatical rules, outputting, by the syntax analyzer, a result of the analysis as an syntax-analysis result, and associating, by the syntax analyzer, the details of the processing operations with the user-defined machine instructions and storing the associated details of the processing operations and user-defined machine instructions in an intrinsic function definition database when detecting that the combination of the instructions is a function definition of the intrinsic function which defines the details of the processing operations associated so as to be converted into the user-defined machine instruction;

See Compiler front end overview, p. 47; and see Syntax analyzer, start at p. 48

generating, by a code generator, machine instructions from the source program based on the syntax-analysis result of the syntax analyzer (It is standardized by compilation techniques; see Compiler front end overview, p. 47)***; and***

replacing, by a code optimizer, the machine instructions by the corresponding user-defined machine instructions stored in the intrinsic function definition database in the case where the machine instructions generated by the code generator are associated with the details of the processing operations stored in the intrinsic function definition database

wherein an instruction statement for explicitly calling the intrinsic function which defines aforementioned details of the processing operations is not beforehand described in a body of the input source program since the definition of the intrinsic function is provided independently from the input source program, and the program for compiling generates no object code from the intrinsic function.

See Example at p. 51, program pi. It includes a SUM function in the pi program, e.g. pi=sum(rectangle_area). This program is explicitly to call the intrinsic function. When the compiler in the syntax analyzer phase encounters the sum, it will check only the definition, which is the legality of operands and comparability of operands (See Expressions and Symbol table building and symbol promotion, p. 50), then building the symbol table. without embedded in a body of the input source program (such as the program pi), when encountering the intrinsic function (i.e. sum).

As per Claim 2: Loveman discloses The memory of claim 1,

further comprising dividing, by a lexical analyzer, the operations described in the source program into tokens, wherein the syntax analyzer analyzes whether or not the tokens conforms to grammatical rules, and analyzes whether or not the combination of the tokens is a function definition of the intrinsic function. It is standardized in compiler. For example, see Lexer, p. 48; and Expressions, p 50.

As per Claim 3: Loveman discloses ***The memory of claim 1,***

wherein the syntax analyzer inputs the definition of the intrinsic function and the details of the processing operations of the intrinsic function from an intrinsic function information file

different from the source program. It is standardized in compiler. For example, see Expressions and Symbol table building and symbol promotion, p. 50.

As per Claim 4: Loveman discloses ***The memory of claim 1,***

wherein the definition of the intrinsic function includes information of parameter types and an identification name.

As per Claim 5: Loveman discloses ***The memory of claim 2,***

wherein the definition of the intrinsic function includes information of parameter types and an identification name (for example, sum(), or set of FORTRAN mathematical intrinsics).

As per Claim 6: Loveman discloses ***The memory of claim 3,***

wherein the definition of the intrinsic function includes information of parameter types and an identification name (for example, sum(), or set of FORTRAN mathematical intrinsics).

As per Claim 7: Loveman discloses ***The memory of claim 1,***

wherein in the intrinsic function definition database, plural kind of details of the processing operations can be defined for one intrinsic function (for example, sum(), or set of Fortran mathematical intrinsics discussed in Utility Framework, p. 48).

As per Claim 8: Loveman discloses ***The memory of claim 2,***

wherein in the intrinsic function definition database, plural kind of details of the processing operations can be defined for one intrinsic function (set of Fortran mathematical intrinsics, and Run-time Libraries, discussed in Utility Framework, p. 48).

As per Claim 9: Loveman discloses ***The memory of claim 3,***

wherein in the intrinsic function definition database, plural kind of details of the processing

operations can be defined for one intrinsic function (set of Fortran mathematical intrinsics, and Run-time Libraries, discussed in Utility Framework, p. 48).

As per Claim 10: Loveman discloses ***The memory of claim 4,***

wherein in the intrinsic function definition database, plural kind of details of the processing operations can be defined for one intrinsic function (set of Fortran mathematical intrinsics, and Run-time Libraries, discussed in Utility Framework, p. 48).

As per claims 13, 20: Claims 13, and 20 have the same functionality of claim 1. See rationale addressed in the rejection of claim 1.

As per claims 14-17: Claims 14-17 have the same functionality that is claimed in claims 2-10. See rationale addressed in the rejection of claims 2-10.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 11-12, 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Loveman, "The DEC High Performance Fortran 90 Compiler Front End", 1995, IEEE, pages: 46-53.

As per Claim 11: Loveman discloses intrinsic function can be described by FORTRAN language, does not discloses ***the processing operations of the intrinsic function can be described by C language***.

However, C language is only changing in size or shape of a programming language, such as from FORTRAN to another language, or making adjustable of FORTRAN to C that does not present patentability. See MPEP 2144.

It would be obvious to an ordinary in the art to make a change or an adjustment in view of a given programming language to another if either language does the same.

As per claim 18: Claim 18 has the same functionality of claim 11. See rationale addressed in the rejection of claim 11.

As per Claim 12: Loveman describes intrinsic function as a runtime built-in function. Loveman does not mention the ***intrinsic function can be described by hardware description language.***

However, describing ***intrinsic function*** from one language to ***hardware description language*** is only changing in size or shape of a programming language. See MPEP 2144.

It would be obvious to an ordinary in the art to make a change or an adjustment in describing a given intrinsic function from any language if either language can perform is function.

As per claim 19: Claim 19 has the same functionality of claim 12. See rationale addressed in the rejection of claim 12.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted T. Vo whose telephone number is (571) 272-3706. The examiner can normally be reached on 8:00AM to 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Y. Zhen can be reached on (571) 272-3708.

The facsimile number for the organization where this application or proceeding is assigned is the Central Facsimile number **571-273-8300**.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR)

system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TTV
March 31, 2009

/Ted T. Vo/
Primary Examiner, Art Unit 2191